California Energy Commission
2015 Accomplishments

Responding to California's Drought

- Responded to the state's historic drought and Governor Edmund G. Brown Jr.'s Executive Order B-29-15 by approving new standards for showerheads, faucets, toilets, and urinals. The standards are expected to save more than 13.8 billion gallons of water in the first year and 150 billion gallons per year in 10 years.
- Following the Governor's Executive Order, the Energy Commission authorized emergency demolition and construction activities at the Geysers geothermal power plant complex after cooling towers were destroyed by devastating wildfires in Lake and Sonoma Counties. This emergency action will significantly reduce the time required to bring this renewable energy source back on line.
- The Energy Commission approved backup water supplies for two Northern California power plants. The approval ensured reliable power would not be disrupted because of the drought at the GWF Tracy Combined Cycle Power Plant and the Mariposa Energy Project.
- Designed the Water Energy Technology (WET) program, in response to Governor Brown's Executive Order B-29-15 to accelerate the deployment of innovative water and energy saving technologies and reduce greenhouse gas emissions. Eligible WET funding includes agricultural rebates, industrial and commercial competitive grants, residential improvement grants, and water treatment and recovery and desalination improvement grants to existing buildings.
- Developed the Statewide Appliance Rebate Program to address the drought emergency that provides incentives for the replacement of inefficient household appliances, including a clothes washer rebate program and a water appliance direct-install program in disadvantaged communities.

Collaborating on Climate Change

- Tracked climate change investments with a new interactive map, ClimateInvestmentMap.CA.Gov. Along with the Energy Commission, the map was developed by the California Department of Technology working with the California Environmental Protection Agency and other state entities.
- Introduced the "Climate Console," an interactive, user-friendly modeling tool that provides information to simplify coordinated conservation planning efforts. The Energy Commission worked with CBI to develop the console that the Renewable Energy Action Team used to prepare the draft *Desert Renewable Energy Conservation Plan (DRECP)*.
- Released the *California Climate Change Research Plan*. Nearly 50 authors representing 16 state agencies authored the research plan, which delineates California's most critical climate-related research gaps. This unprecedented effort provided the first comprehensive climate change research plan developed by any state.

- Hosted 40 international delegations from 42 countries and six continents to exchange information on climate change, renewable energy, energy efficiency, research and development, and alternative transportation.

Transforming Transportation

- Developed and executed a $100 million investment plan for the Alternative and Renewable Fuels and Vehicle Technology Program (ARFVTP). The program invests in technologies to reduce greenhouse gas emissions from the transportation sector, which accounts for nearly 40 percent of California's emissions. To date, roughly $590 million has been invested in more than 495 projects to cut pollution and create jobs in California.
- Helped pave the way for a zero-emission transportation future with $38.7 million funding for electric vehicle charging stations, contributing to the largest network of electric charging stations (7,515) in the country. These stations are supporting more than 163,000 plug-in electric vehicles.
- Opened 15 new and upgraded hydrogen refueling stations with ARFVTP funds. Another 10, along with a mobile refueler, are expected to be in operation January 2016 to begin supporting an estimated 10,500 fuel cell electric vehicles by 2018.
- Awarded more than $31 million for 11 medium and heavy duty vehicle demonstration projects that enhance market acceptance and promote commercialization of clean vehicle technologies. One target area includes disadvantaged communities along California's major freight corridors.
- Provided financial support to four early development biofuels projects focused on solutions to significant biofuels industry problems, including a project to develop a drop-in gasoline substitute fuel produced from California forest residue.

Developing Renewable Energy

- Released the Bureau of Land Management's (BLM) *Proposed Land Use Plan Amendments* and the *Environmental Impact Study* for the Desert Renewable Energy and Conservation Plan (DRECP) – an innovative planning effort for parts of the Southern California desert. The first phase of the plan would implement renewable energy and conservation efforts across 10 million acres of BLM land. The second phase focuses on private lands.
- Initiated the Renewable Energy Transmission Initiative 2.0, an electric transmission coordination and planning process, in collaboration with the California Public Utilities Commission (CPUC) and the California Independent System Operator to better manage critical land-use and environmental constraints and identify potential transmission opportunities that access and integrate renewable energy with the most environmental, economic, and public benefits.
- Certified 105 renewable facilities as eligible for the state's Renewables Portfolio Standard (RPS) totaling more than 1,965 megawatts (MW) of new eligible renewable capacity. The RPS requires all sellers of electricity in California, including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators, to procure

33 percent of their electricity retail sales from renewable facilities that the Energy Commission has certified as RPS-eligible by 2020.

- Provided incentives for the installation of 6,700 solar photovoltaic systems totaling 20 MW and approved 500 applications for an additional 47 MW through the New Solar Homes Partnership Program. The majority of solar installations took place in Southern California, with one of every four new single-family homes built with solar.

Advancing State Energy Policy

- Released the *2015 Draft Integrated Energy Policy Report (IEPR)* presenting the Energy Commission's assessments and recommendations on key energy issues. The report focuses on meeting the state's climate goals as laid out by Governor Brown and codified by Senate Bill 350 (De León, Chapter 547, Statutes of 2015), with an emphasis on energy efficiency. The *IEPR* also addresses California's drought and provides energy forecasts and updates on electricity infrastructure in Southern California and on California's nuclear plants.
- Adopted the *Existing Buildings Energy Efficiency Action Plan (AB 758 Action Plan)*, the roadmap for increasing energy efficiency in existing homes and businesses.
- Completed the *AB 1257 Natural Gas Act Report: Strategies to Maximize the Benefits Obtained from Natural Gas as an Energy Source*. The Energy Commission prepared this report in coordination with other state agencies and as part of the *2015 IEPR*. Issues included natural gas infrastructure and pipeline safety, methane leakage from infrastructure, biogas applications, efficiency and natural gas end-use, and natural gas use in the transportation sector.

Achieving Energy Efficiency

- Supported energy efficiency and solar power projects at public schools. The Energy Commission approved 682 Energy Expenditure Plans, representing $470 million in funding, for energy efficiency and solar improvements at schools under the Energy Commission's Clean Energy Jobs Act (Proposition 39) kindergarten-through-12th-grade program. The plans include improvements at 2,325 school sites, resulting in nearly $35 million in annual energy savings.
- Approved the *2016 Building Energy Efficiency Standards* that will reduce energy costs, save consumers money, and increase comfort in new and upgraded homes. Single-family homes built under these standards will consume about 28 percent less energy for lighting, heating, cooling, ventilation, and water heating than those built to the 2013 energy standards.
- Provided $4.5 million for training on the installation of advanced energy efficiency measures in new home construction projects and up to $4.5 million for training on the installation of advanced energy efficiency measures in existing buildings in disadvantaged communities.
- Awarded more than $27 million in loans to fund energy efficiency and clean energy projects. These projects will save Californians $2.4 million in energy costs annually, more than 14 million kilowatt hours and roughly 12,000 therms, and will reduce carbon dioxide emissions by more than 5,100 tons over the life of the projects.

- Launched an energy efficiency enforcement program to ensure consumers receive the energy savings expected from household appliances. The Energy Commission is targeting companies manufacturing and selling appliances that do not meet the Energy Commission's appliance energy efficiency standards.
- Launched the Modernization Appliance Efficiency Database System, an online system to automate certification of energy saving appliances. The online system replaces a manual time-consuming process, reducing staff response time from two weeks to two days.
- Tested and introduced an online application that features automated validation and in-house reporting of data stored in the Energy Commission's Energy Consumption Database Management System (ECDMS). This new application identifies major inconsistencies in energy consumption data submitted by more than 60 utilities. The data are then used to analyze and publish energy consumption information in support of the Energy Commission's *IEPR*.
- Responded to more than 9,000 calls from contractors and others who contacted the Energy Standards Hotline. Common questions focused on lighting and heating/air conditioning systems.

Evaluating Power Plants

- Approved one natural gas-fired power plant replacement project with a capacity of 630 MW.
- Reviewed five natural gas-fired power plant project applications for certification to identify any potential environmental impacts and ensure meaningful public involvement. If approved, these projects will provide an additional 3,200 MW of electricity to Californians.
- Oversaw the construction and regulatory compliance of one 485 MW solar photovoltaic power plant and one 300 MW natural gas-fired plant.
- Monitored compliance for 116 existing operating power plants located throughout California.

Investing in Energy Innovation

- Invested $178 million in electric research agreements and about $89 million in natural gas research. Technology investments include smart and efficient vehicle charging, vehicle-to-grid communication interfaces, modular bioenergy systems for forest applications and waste-to-energy bioenergy systems, advanced inverters to enable high-penetration distributed photovoltaics, integration of intermittent renewable energy and the reduction of peak power demand, and advanced combined heat and power.
- Developed a natural gas engine with near-zero oxides of nitrogen (NOx) emission with the South Coast Air Quality Management District, with efforts underway to commercialize the engine.
- Published more than 80 research and development research reports, including *Piloting The Integration And Use Of Renewables To Achieve A Flexible And Secure Energy Infrastructure,* which addresses how the design and operation of energy infrastructure in communities can promote a high penetration of intermittent renewable wind and solar.
- Developed a research roadmap for the reduction of natural gas use in homes and businesses. This roadmap serves as a guide to planning Energy Commission research in natural gas energy efficiency in California buildings.

- Prepared the draft energy sector plan for *Safeguarding California: Implementation Action Plan*. This plan was prepared in coordination with the California Natural Resources Agency, the Department of General Services, and the CPUC, in accordance with the Governor's Executive Order B-30-15. The plan calls for the formation of a Climate Adaptation Working Group with the Energy Commission and the CPUC.
- Hosted the first EPIC Symposium, along with Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company. The symposium showcased a variety of projects, including energy efficiency, generation and integration, systems architecture, and data analytics. The symposium attracted 230 participants, raised awareness and visibility of EPIC investments and promoted stakeholder engagement.